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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,515	06/24/2003	Kazuo Takemasa	AK-418XX	8865
207	7590	05/13/2005	EXAMINER	
WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP TEN POST OFFICE SQUARE BOSTON, MA 02109			LEUNG, RICHARD L	
			ART UNIT	PAPER NUMBER
			3744	

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/602,515	<b>Applicant(s)</b> TAKEMASA, KAZUO	
	<b>Examiner</b> Richard L. Leung	<b>Art Unit</b> 3744	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: the recitations of "as claimed in claim 1," (page 8, line 32); "as claimed in claim 2," (page 9, line 19); "as claimed in claim 3," (page 9, line 27); and "as claimed in claim 4," (page 9, line 34) should be removed from the written description of the invention since such statements do not necessarily reflect the status nor content of the claims. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 4824454 (Kondo et al.) in view of US 4592205 (Brodbeck et al.) and US 5327729 (Yanai et al.). Kondo et al. disclose a system for cooling an object 19, comprising a preserving vessel 17 with a preservation chamber, which is filled with liquid cryogen 18 such as liquid nitrogen (column 1, line 12). Referring particularly to FIG. 2 and column 2, said system further comprises a Stirling refrigerator 10 and a condensing chamber 13 outside said preserving vessel 17 wherein vaporized cryogen is re-liquefied. The gas phase part of the condensing chamber 13 is made to communicate with that of said preserving vessel 17 through a pipe 15, the liquid phase part of the condensing chamber 13 is made to communicate with that of said preserving vessel 17 through a pipe 16 connecting between the lower part of the condensing chamber 13 and the lower

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part of the preservation chamber of said preserving vessel 17 (see FIG. 2 and column 2, lines 38-43), and the cooling part 21 and 22 of said refrigerator is arranged inside the condensing chamber 13. It is clear from FIG. 2 that the liquid phase part of said condensing chamber 13 is set to a position higher than that of the liquid phase part of said preserving vessel 17 since the entire condensing chamber 13 appears to be positioned higher than said preserving vessel 17. Kondo et al. fail to disclose that said liquid nitrogen in the preserving vessel is supplied from a liquid nitrogen cylinder and fail to disclose a valve associated with a liquid supply pipe from said cylinder to said preservation chamber of said preserving vessel, wherein the valve is opened to supply said liquid nitrogen to said preservation chamber when a liquid level of said liquid nitrogen in said preservation chamber, detected by a liquid level sensor in said preservation chamber, becomes lower than a predetermined level. Brodbeck et al. teach a delivery system for liquid nitrogen comprising a vessel 1 with a chamber holding liquid nitrogen (column 3, lines 21-22), a liquid nitrogen cylinder with a supply pipe 7 connected to said vessel 1 (column 3, lines 34-36), a valve 13 associated with said supply pipe 7, and a liquid level sensor 15 arranged in said chamber of said vessel. Said valve 13 is opened to supply said liquid nitrogen to said chamber of said vessel 1 when the liquid level of said liquid nitrogen in said chamber is detected to be lower than a predetermined level by said liquid level sensor 15 (column 3, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included in the system disclosed by Kondo et al. said liquid nitrogen cylinder, valve, and liquid level sensor arrangement taught by Brodbeck et al. in order to fill said

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preserving vessel with cryogen and to automatically maintain the amount of cryogen in said system during use, for example, if too much cryogen has been vaporized in said preserving vessel and the liquid level in said vessel is too low to provide proper cooling. Kondo et al. further fail to disclose a pressure sensor arranged in said condensing chamber, and that said Stirling refrigerator is driven when a detection value of said pressure sensor is a predetermined value or higher, and further fails to disclose a gas discharge path and safety valve provided in communication with said condensing chamber that operates to relieve dangerous pressure buildup in said condensing chamber. Yanai et al. teach a condensing chamber 1 for liquefying and storing nitrogen, and located within said condensing chamber 1 is the cold part 2 and 6 of a low-temperature refrigerator 3 for use in condensing nitrogen vapor. With particular reference now to column 3, lines 22-31, said chamber 1 is provided with a pressure sensor 16 that senses the pressure within said chamber 1. If the pressure drops below a predetermined pressure, then the operation of the cold part 2 of the refrigerator 3 is stopped. In other words, the refrigerator 3 is driven when a detection value of said pressure sensor 16 is a predetermined value or higher. It would have been obvious to one of ordinary skill in the art at the time the invention was made to regulate the Stirling refrigerator disclosed by Kondo et al. using the pressure-sensor arrangement taught by Yanai et al. in order to prevent unnecessary operation of the refrigerator, particularly when there is little vapor in the chamber, and therefore reduce the energy consumption of the system. Yanai et al. further teach a gas discharge path 18 and safety valve 19 in communication with said condensing chamber 1, and it would have been obvious to one

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of ordinary skill in the art at the time the invention was made to have included this safety valve arrangement in said condensing chamber disclosed by Kondo et al. in order to prevent possible rupturing of said condensing chamber if the pressure within said chamber exceeds safe operating levels, as is already commonly practiced in the art.

***Response to Arguments***

4. Applicant's arguments filed 03 May 2005 have been fully considered but they are not persuasive.

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Applicant contends that the references relied upon by the Examiner, in particular Kondo et al., fail to teach "a pipe connecting between the lower part of the condensing chamber and the lower part of a preservation chamber of said preserving vessel," as broadly recited in the claim. Applicant specifically asserts that "a pipe extending through the upper end of a chamber and into a liquid within the chamber is completely different than having the pipe connect with the lower part of the chamber," and that the claim should "not be interpreted to mean that the pipe could physically connect to the upper end of the chamber so long as it extends into the chamber." Applicant, however, has not provided any arguments or reasons supporting said assertions nor has Applicant explained why the Examiner's position is flawed. Therefore the Examiner maintains that the teachings of Kondo et al. meet this limitation.

To reiterate what was presented in the previous Office action dated 04 February 2005, Kondo et al. demonstrate a pipe (conduit) 16 connecting the lower part of condensing chamber 13 with the lower part of the preservation chamber of the preserving vessel (cryostat) 17. As recited in column 2, lines 34-43,

"In the chamber 13...gas cryogen is condensed back to liquid cryogen. Resulting liquid cryogen is, then, returned into the cryostat 17 via the second conduit 16. An upper opening and lower opening of the second conduit 16 are, respectively, positioned at a lower side of the interior portion in the chamber 13 and in the liquid cryogen 18 in the cryostat 17."

The lower opening of the conduit 16 in the vessel 17 is considered by the Examiner to be located at the lower part of the preservation chamber of the preserving vessel 17 since it is positioned in the liquid portion 18, as opposed to the upper part 20 of the preservation chamber, which is understood to be occupied by vaporized cryogen. Accordingly, the Examiner maintains that Kondo et al. does indeed disclose a pipe connecting the lower part of the condensing chamber and the lower part of a preservation chamber of the preserving vessel, as broadly required by the claim. While Applicant makes the assertion that the apparatus of Kondo et al. is "completely" and "fundamentally" different than the present invention and alleges certain advantages that the present invention has over the teaching of Kondo et al., Applicant's remarks do not show nor explain how this teaching is actually distinguishable from the language of the claim. That is, Applicant has not sufficiently demonstrated why a pipe that connects the lower part of a condensing chamber with the liquid portion of a preserving chamber (as taught by Kondo et al.) cannot be reasonably interpreted as being a pipe connecting the lower part of a condensing chamber and the lower part of a preserving chamber as

required by the claim. Therefore Applicant's arguments are not deemed persuasive and the rejection of claim 1 has been repeated.

***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard L. Leung whose telephone number is 571-272-4811. The examiner can normally be reached on Mon-Fri.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl J. Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Richard L. Leung  
Examiner  
Art Unit 3744

  
**CHERYL TYLER**  
**SUPERVISORY PATENT EXAMINER**

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